UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

115-5

DATE: May 28, 1997

SUBJECT: Naval Air Warfare Center, Warminster
Preliminary Data and Risk Evaluation
Site 6, Area B

FROM: Nancy Rios Jafolla, Toxicologist
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TO: Darius Ostrauskas, RPM
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I have reviewed the subject document for toxicological accuracy and completeness. It was found to contain numerous errors and to be incomplete. I have the following specific comments to offer for further consideration:

Screening for COCs:

- The Regional Screening Guidance on Selection of COCs (attached) was not used. This Guidance needs to be used in the revised risk assessment in order to accurately determine the COCs at the site. This involves comparison of the maximum site concentration (not the representative concentration) with the appropriate RBCs (e.g., residential and recreational) at a cancer risk of 1E-06 and a hazard index of 0.1.

- Screening out COCs based on background is done statistically. The elimination of COCs based on background is a risk management decision; therefore, site-related COCs that exceed their respective RBCs and are present at or below background levels should still be characterized in the risk assessment.

  The COC Tables indicate in a footnote that a statistical comparison of soil contaminant levels in background with onsite soils was performed and shown on another table. This table is not included in the Report. On page APPB-24, Section 1.6.3.2, it is stated that Shacklette et al., 1984 was used to eliminate arsenic as a COC based on the background range for arsenic in the Region. Therefore, it is not clear how background was handled.

- The use of the soil screening guidance requires that the site be scoped and that samples be taken in accordance with the guidance prior to using the SSLs to eliminate COCs. Therefore, the SSLs should not be used unless the guidance requirements are met.

- COCs that are present at a site above the RBCs but detected infrequently and believed to be site-related should be carried through the risk assessment.

- The footnotes on tables 1-1 and 1-2 should be reformatted. The right margins of some of the footnotes were cutoff.

Representative Concentration:

- All data should be validated prior to completion of the risk assessment. A copy of the QA/QC Report should be included in the Appendix.

- APPB5-6. If the data are not determined to be lognormally distributed or normally distributed (such as the distribution is "unknown"), one of the following may be performed:

  a. Examine the data distribution, if the distribution appears to be lognormally distributed and there are minimal non-detects in the data set, assume it is lognormal. If the distribution appears to be normally distributed, assume normality.

  b. Use the higher of the two estimates for normal or lognormal distribution (or the maximum concentration, if applicable).

  c. Compare the p values for the two W-test statistics and choose the distribution with the highest p value.

  d. Perform a nonparametric test such as the Z-test if the data sets are large.

- APPB-1. For duplicates, when one result was positive and the other was not detected but the detection limit (DL) was reportedly higher than the positive result, the positive result was used for the non-detected sample. This is inappropriate when the DL is an estimate of the sample quantitation limit (SQL) because SQLs are sample-specific and take into account matrix effects for individual samples. Therefore, the use of the positive result (instead of one half the SQL) may be a biased (e.g., low or high) estimate of the average concentration for that sample and fails to take into consideration sample variability.

- Some consideration should be given to assessing "hot spots" at this Site. The Site should be divided into smaller units (e.g., by trenches) and a risk assessment performed for those areas using data collected within that unit only. These areas can be screened for COCs by using the appropriate RBCs for the residential and recreational land use. A risk assessment is performed only on those selected COCs to determine the total risk level associated with those COCs at that unit.

Exposure Assessment:

- Non-cancer Risk Tables: Please calculate the non-cancer risk for the adult and the total risk estimate (child plus adult) in the table.

- Please include the adult recreational scenario (i.e., 30 year exposure) in the table to be complete.

- Note that the risk algorithms in Tables 1-5 and 1-6 are incorrect, although the actual risk calculations are correct. Please provide the correct algorithms and sample calculations in the Report. Please provide spreadsheets in the Appendix for all of the calculations.

- The risk assessment for the dermal route should be calculated for all COCs.

Risk Characterization:

APPB-22. Note that there is no discussion in the Section (as indicated in Section 1.6) about lead. The IEUBK Model should be use to calculate blood lead levels for lead in soils at Site 6 if lead has been selected as a COC in soil (both surface and subsurface soil.)

Uncertainty Analysis:

- APPB-24. The uncertainty analysis should include an estimate of the central tendency, especially for risk levels which just slightly exceed the promulgated acceptable cancer risk range of 1E-04 and 1E-06 and a hazard index of 1.

- APPB-27. Where is Table 43- The rationale for each exposure assumption?

Other Misc.:

- APPB-14, 1st Paragraph. Please define "MSK."

- APPB-27, Section 1.7.2, Uncertainty of Toxicity Assessment, 3rd Sentence. The word "from" is misspelled.

I have no further comments at this time. Please let me know if you need further assistance.

Attachment: Regional Screening Guidance for Selection of COCs
cc: EJohnson (3HW41) w/o attachment